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of a few Mesozoic formations in South Africa, are Paleozoic in both cases, and were originally spread out in horizontally uniform sheets of great vertical diversity. Great thicknesses of rock were laid down on slowly subsiding peneplains until compressional forces crowded them into parallel folds with overturns directed toward the continental center and with essentially flat plateaus on the landward side of the systems. In both cases, therefore, the mountain-making forces produced thrusts directed from the ocean toward the land masses. The massive Karroo formations in southernmost Africa, as the Carboniferous strata in the Appalachians, have been almost entirely removed from the folded area by a long period of erosion, which produced a partial peneplanation; while the renewal of deep erosion since that period is the result of another relative uplift. The present configuration of the mountains is in no sense due to the form the country received originally as a result of the action of the compressional forces, though the prevalence of anticlinal ridges and synclinal valleys has proved a snare to some observers. The synclinal valleys are occupied by *resequent*, not *consequent*, streams; the early consequent streams were diverted to the anticlines at one period, but were forced back into synclinal positions by the resistance of a second deep-lying hard stratum. Where the beds of a regularly folded region are of great vertical diversity and the geologic history is similar to that of the Alleghenies or the Cape Colony ranges, the resequent type of valley is the one which theoretical considerations indicate as the natural result of the conditions prevailing.

H. H.

Drainage Modifications in the Tallulah District. By DOUGLAS WILSON JOHNSON. Proceedings of the Boston Society of Natural History, Vol. XXXIII, No. 5; pp. 211-48. Boston, February, 1907.

The Chattooga River flows southwest between Georgia and South Carolina to the westernmost point in the latter state, where it receives the Tallulah River as a tributary from the northwest and then turns abruptly to the southeast and flows to the Atlantic Ocean under the names of the Tugaloo and Savannah rivers. A few miles from this abrupt bend, Deep Creek, one of the headwaters of the Chattahoochie system, continues the course started by the Chattooga to the southwest.

The conclusion is reached that, by a process of "remote capture," the Chattooga River, which formerly flowed southwest into the Gulf of Mexico as a part of the Chattahoochie system, was captured by a member of the Savannah system. The Atlantic drainage gained this victory over that of

the Gulf by virtue of its shorter course to the sea, aided perhaps by favorable crustal warping. The place of the capture was just below the junction of the Tallulah and Chattooga Rivers. The falls and gorge of the Tallulah, difficulties in the paths of many former observers, are explained as the result of the presence of a rock barrier in that river more resistant than the formations the Chattooga was forced to cut through. Other physiographers, notably Hayes and Campbell, had reached essentially the same conclusions in regard to this capture, but it remained for this masterly exposition of the case to set at rest all doubts on the subject. H. H.

Postglacial Faults of Eastern New York. By J. B. WOODWORTH.

From New York State Museum, Bulletin 107, Geological Papers. Albany, 1907.

At a number of points in and near the Hudson River Valley, as well as in various points in New England, the relation to one another of glacial striae on each side of certain fault planes shows that the displacements have taken place since glacial times. The so-called tilting of the land after the retreat of the ice has, therefore, been accompanied in this region by the fracturing of rocks in certain zones where the strata have yielded by numerous small step-faults. These have a downthrow to the southwest where the strike of the structures is normal to that direction, and to the south where the strike is east and west. The observations so far made indicate that the ancient shore lines on the eastern side of the Hudson gorge north of the Highlands have been raised a few feet more than those of the western side. Confirmation is also given to the supposition that there has been a relative uplift in the north and a downthrow in the south of this area, though it is uncertain whether the degree of faulting is a measure of the extent of the change of level. Further examination of these displacements may furnish data for the exact determination of the amount and nature of the postglacial warping to which the northeastern states have been subjected.

H. H.